

WHAT IS CLAIMED IS:

1. A mounting apparatus for mounting a hollow work-piece on a machine, the mounting apparatus comprising

(a) a cylindrical supporting fixtures including an end portion for inserting into an end of the hollow workpiece, said end portion having an outer surface, and a circumferential groove formed into said outer surface;

(b) a dampening plug assembly for positioning inside the hollow workpiece adjacent said cylindrical supporting fixture; and

(c) an end pressure reducing device for mounting within said circumferential groove underneath the end of the hollow workpiece for centrifugally supporting and enabling the reduction of machining-induced pressure from the end of the hollow workpiece.

2. The mounting apparatus of Claim 1, wherein said cylindrical supporting fixture includes a fixture end surface, a longitudinal axis, and an axial slot formed into said fixture end surface.

3. The mounting apparatus of Claim 1, wherein said dampening plug assembly includes a hollow cylindrical foam member, and a plug support device for mounting within an end of said foam member.

4. The mounting apparatus of Claim 1, including a second one of said cylindrical supporting fixture, thereby forming a pair of cylindrical supporting fixtures for inserting one into each end of the hollow workpiece.

5. The mounting apparatus of Claim 1, wherein said end pressure reducing device is compressible outwardly against an inside diameter of the end of the hollow workpiece when rotated with the hollow workpiece during machining operations.

6. The mounting apparatus of Claim 2, including a centering pin mounted within said axial slot for centering said dampening plug assembly.

7. The mounting apparatus of Claim 3, including a second one of said plug support device, thereby forming a pair of plug support devices for each supporting an end of the hollow workpiece.

8. The mounting apparatus of Claim 3, including a series of size-reducing spring devices angled for reducing a size of, and tapering, an end of said hollow cylindrical foam member so as to facilitate insertion of said hollow cylindrical foam member into the hollow workpiece.

9. The mounting apparatus of Claim 3, wherein said hollow cylindrical foam member is comprised of an inner foam cylinder and an outer foam cylinder.

10. The mounting apparatus of Claim 5, wherein said end pressure reducing device is made from a foam rubber having a durometer within a range of 15 and 25.

11. The mounting apparatus of Claim 6, wherein said centering pin projects from said cylindrical supporting fixture beyond said fixture end surface.

12. The mounting apparatus of Claim 6, wherein said centering pin is mounted within said axial slot for rotation with said cylindrical supporting fixture.

13. The mounting apparatus of Claim 9, wherein said hollow cylindrical foam member is compressible outwardly against an inside diameter of the hollow workpiece when rotated with the hollow workpiece during machining operations.

14. The mounting apparatus of Claim 9, wherein said hollow cylindrical foam member is made from a foam rubber having a durometer within a range of 5 and 7.

15. The mounting apparatus of Claim 9, wherein an external diameter of said hollow cylindrical foam member is slightly less than an inner diameter of said workpiece.

16. Mounting apparatus for mounting a hollow work-piece on a machine, the mounting apparatus comprising

(a) a cylindrical supporting fixture including an end portion for inserting into an end of the hollow workpiece, said end portion having an outer surface, and a circumferential groove formed into said outer surface;

(b) a first foam rubber member for positioning inside the hollow workpiece adjacent said cylindrical supporting fixture, said first foam rubber member having a first density and a first durometer within a first range of durometer values; and

(c) a second foam rubber member for mounting within said circumferential groove underneath the end of the hollow workpiece for centrifugally supporting and enabling the reduction of machining-induced

pressure from the end of the hollow workpiece, said second foam rubber member having a second density different from said first density, and a second durometer within a second range of durometer values that is greater than said first range.

17. The mounting apparatus of Claim 16, wherein said first foam rubber member comprises a cylinder.

18. The mounting apparatus of Claim 16, wherein said second foam rubber member comprises has a donut shape.

19. The mounting apparatus of Claim 16, including a centering pin mounted within said axial slot for centering said dampening plug assembly

20. The mounting apparatus of Claim 16, including a series of size-reducing spring devices angled for reducing a size of, and tapering, an end of said hollow cylindrical foam member so as to facilitate insertion of said hollow cylindrical foam member into the hollow workpiece.